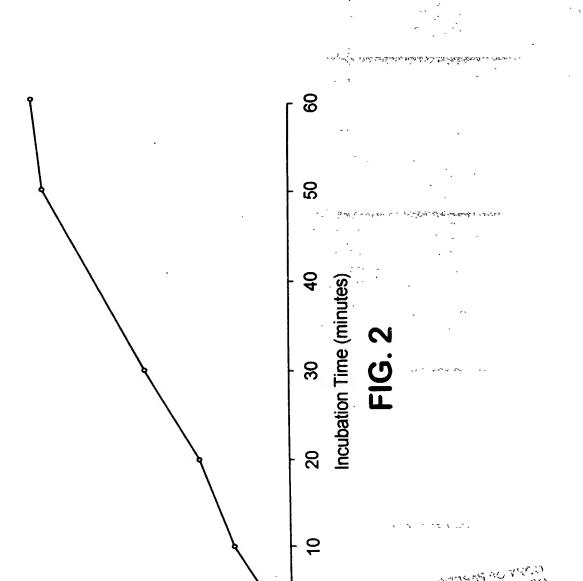
Plantfolia Agent Name Scott E Scioli Sheet I of 10

Ph No 215-557-5986

1/10 4-Hydroxy-3-methoxybenzyl ÓН 3,4-Dihydroxybenzaldehyde 3,4-Dihydroxybenzyl alcohol in Green Vanilla beans p-Hydroxybenzoic acid p-Coumaric acid p-Hydroxybenzyl aldehyde | HO H00C Shikimic Acid Pathway L-Phenylalanine L-Tyrosine



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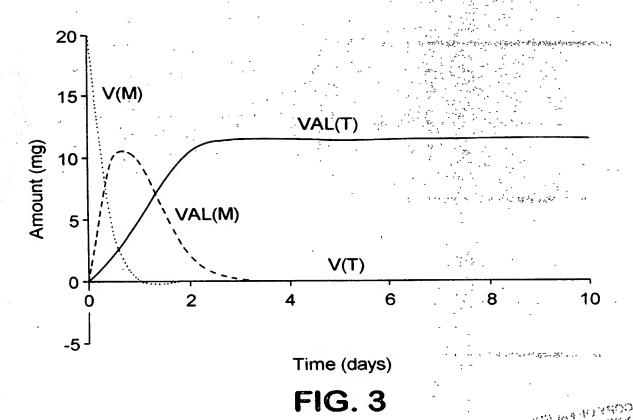
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WH 6\A8 selomn

Title Vanillin Biosynthetic Pathway Enzyme from Vanilla

Inventors Daphna Havkin-Frenkel, et al Title Vanilla Biosynthetic Pathway Enzyme from Vanilla Planifolia Ph No · 215-557-5986 Agent Name Scott E Scioli Sheet 3 of 10

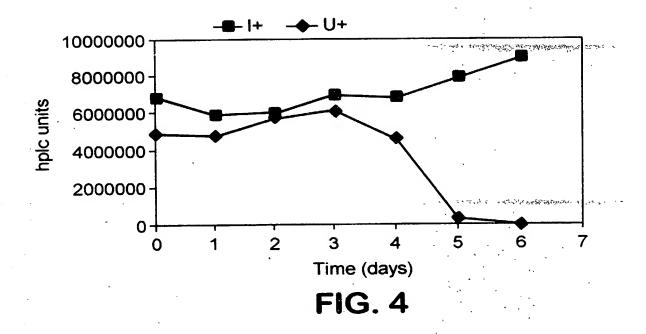
3/10

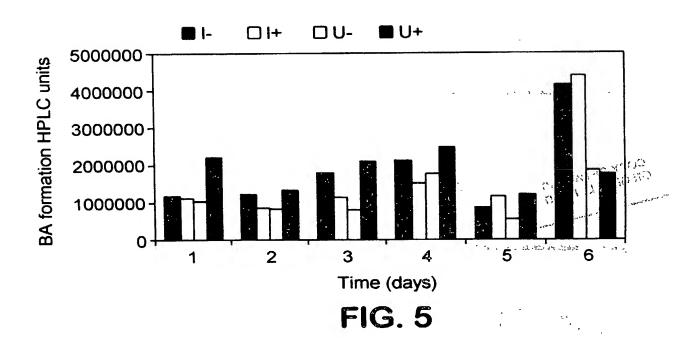


Inventors Daphna Havkm-Frenkel, et al Tule Vanillin Biosynthetic Pathway Enzyme from Vanilla Planifolia Ph. No . 215-557-5986

Agent Name Scott E Scioli Sheet 4 of 10





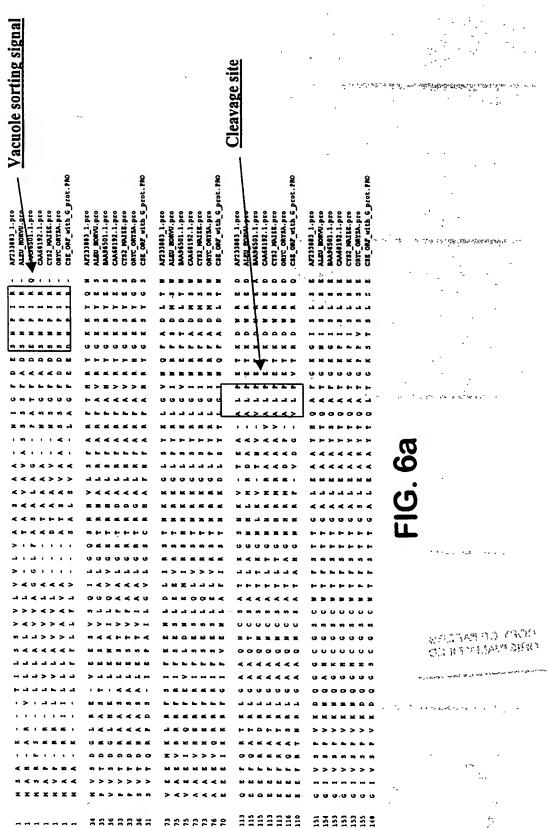


Inventors Daphna Havkm-Frenkel, et al Inventors Daphna Havkm-Frenkel,

Agent Name Scott E Scioli Sheet 5 of 10

Ph No · 215-557-5986

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Agent Name Scott E Scioli Sheet 6 of 10 Ph No 215-557-5986 6/10 His active site /anilla Cysteine with solid deep red) residues that match the Consensus exactly **VCysProt** 271 273 273 273 275 268 Asn active site Cys active site

Inventors Daphna Havkin-Frenkel, et al

Planifolia

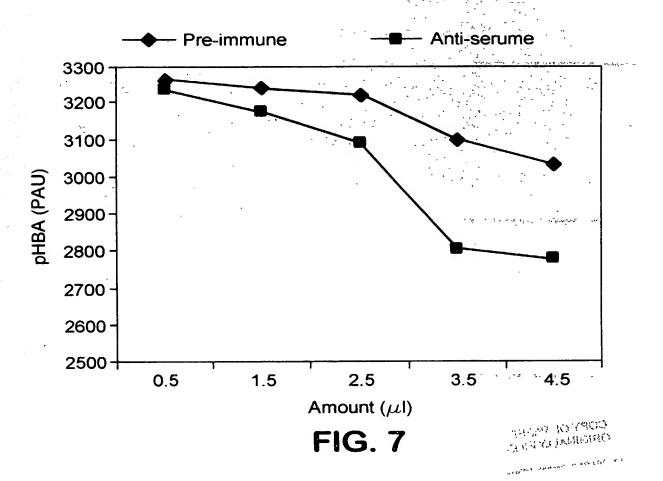
Title Vanillin Biosynthetic Pathway Enzyme from Vanilla

Inventors Dayling Havkin-Frenkel, et al

Ittle Vanillin Biosynthetic Pathway Enzyme from Vanilla
Planifolia

Agent Name Scott E Scioli Sheet 7 of 10 Ph No.. 215-557-5986

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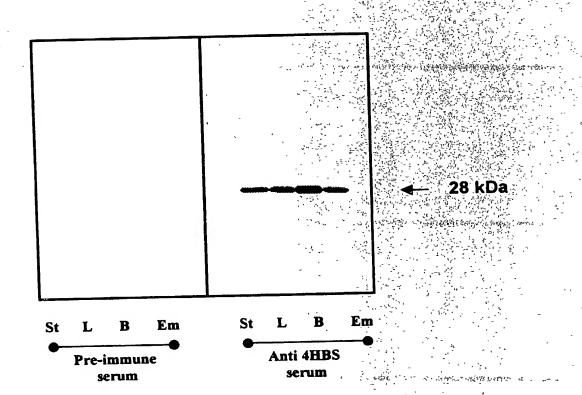


FIG. 8

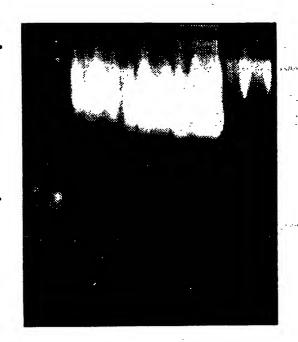
GELLAINMENES STATEMANASANASA Inventors Daphna Havkin-Frenkel, et al Title Vanilha Biosynthetic Pathway Enzyme from Vanilla Ph No · 215-557-5986

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9/10

Protease -142 kD -Collagenase Type III

Protease -37 kDa -Chymotrypsin



St L \mathbf{B} Em

FIG. 9

Title Vanillin Biosynthetic Pathway Enzyme from Vanilla Planifolia

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